

FACT SHEET

Texas Company Licenses Cable Scanning Technology



Cyrospace Technologies Corporation of Houston, Texas is commercializing the Non-Intrusive Cable Tester, an innovation designed and patented by NASA at Kennedy Space Center, Florida to improve the efficiency of cable inspections on the Space Shuttle.

Exclusive patent rights have been granted to Cyrospace, a technology transfer company located near Johnson Space Center. Company President Michael Cyrus said that his firm is developing prototypes for different operational scenarios and has scheduled for actual field-testing in the cable television and telephone infrastructure markets. The company is currently negotiating with manufacturing and distribution firms for production and marketing of this technology.

The company plans to market the innovation as the Cyroscan-2000 and expects market entry by December 2000, Cyrus said. Primary target market sectors include the telephone, Internet, and cable television industries. Cyrospace plans to offer three versions of the Cyroscan-2000, including: a low-cost portable unit with only the basic functions using an audible tone for alarming and identification of the broken cable link; a portable palm size device with all features including keypad and display; and a top-of-the-line telescoping device designed for ease of use while inspecting underground cables.

Cyrus pointed out potential commercial uses, including the aerospace industry, aircraft maintenance facilities, cable television industry, computer network industry, and shipyards. Benefits of this new technology include: providing the capability of detecting a signal under the presence of strong noise; increased accuracy by detecting the fault location to within a few centimeters; portability with its battery-operated, compact tester that can be used in small, hard-to-access places; and low cost.

Dr. Pedro Medelius and Howard Simpson designed the Non-Intrusive Cable Tester while working for I-NET, Inc., the former Engineering Support Services (ESC) contractor to KSC's Engineering Development Directorate (MM). Dr. Medelius, now working with Dynacs, Inc., explained that this innovation was needed to improve the efficiency of cable inspections on the Space Shuttle. The Shuttle uses dedicated signal conditioners (DSC's) for modifying transducer outputs and other signals to make them compatible with orbiter telemetry, displays, and data processing systems.

The DSC's are located throughout the orbiter, often in locations that are difficult to access in the vehicle fuselage. Commercial non-intrusive cable testers inject test frequencies of several hundred kilohertz, much too high a frequency to pass through the DSC's, which have a 10-hertz frequency response. In order to test cables on both sides of a DSC, the cables, which most often are part of multiwire bundles, previously had to be disconnected during the course of troubleshooting instrumentation problems.

Once a cable is disconnected, all systems that have a wire passing through the bundled connector must be retested when the cable is reconnected, resulting in many hours spent retesting systems unrelated to the original problem. Medelius explained that NASA's Non-Intrusive Cable Tester provides a method to check cable continuity while disconnecting only the transducer's end of the cable. This is done by applying a low frequency test signal at one end of the cable. A sophisticated signal detection method is used to detect the presence of the signal in the cable, even under adverse signal-to-noise ratio conditions.

Point of Contact:

Tom Gould

NASA – Technology Programs & Commercialization Office (YA-C1)

Kennedy Space Center, FL 32899

(321) 867-6238